

REMARKS

The Office Action mailed on March 31, 2006, has been reviewed and the comments of the Patent and Trademark Office have been considered. Prior to this paper, claims 1-16 were pending. By this paper, Applicants do not cancel any claims, and add claims 17-24. Therefore, claims 1-24 are now pending.

Applicants respectfully submit that the present application is in condition for allowance for at least the reasons that follow.

Indication of Allowable Subject Matter

Applicants thank Examiner Mullins for allowing claim 3.

Interviews of July and August

Applicants thank Examiner Mullins for twice extending the courtesy of interviews (July 27 and August 31, 2006), in which the independent claims were discussed, claim amendments were discussed, and the prior art was discussed. During the interview, it was agreed that Applicants would recap arguments made during the interview via a written response, and that Examiner Mullins would consider those arguments. Applicants also thank Examiner Mullins for taking the time to study this case in detail (as was readily apparent during the interviews), and to suggest amendments to the claims.

In view of the interviews discussed above, Applicants submit that the above provides a complete and proper recordation of the substance of the interview, per MPEP §713.04.

Claim Rejections Under 35 U.S.C. §103(a)

In the Office Action, Claims 1-2, 5-8, 11-12 and 14-15 are rejected under 35 U.S.C. §103(a) as being unpatentable over Nakano (U.S. Patent No. 6,114,784) in view of Muramatsu (JP 11-346446). Claims 1, 4, 8-9, 11 and 15 are rejected under 35 U.S.C. §103(a) as being unpatentable over Nakano in view of Itoh (U.S. Patent No. 6,225,725). Claims 10, 13 and 16 are rejected under 35 U.S.C. §103(a) as being unpatentable over Nakano in view of Muramatsu and Kurosawa (U.S. Patent No. 6,043,583).

Applicants respectfully submit that the above claims are allowable for at least the following reasons.

Applicants rely on MPEP § 2143, which states that:

[t]o establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

It is respectfully submitted that the asserted combinations are deficient with respect to at least the first and second criteria, and thus a *prima facie* case of obviousness cannot be established in view of any combination.

Lack of Suggestion or Motivation to Modify or Combine the References

MPEP § 2143.01 states that “the prior art *must* suggest the desirability of the invention.” (MPEP § 2143.01, subsection 1, emphasis added.) Applicants submit that the present claims are allowable on the grounds that the first requirement of MPEP § 2143 cannot be met with respect to any of the asserted combinations.

As a preliminary matter, Muramatsu teaches the use of non-magnetic plates 81 to form/make the stator 8 by utilizing yoke 8Y and the mutually separated teeth blocks 80,

which are, of course, separate members. That is, because of the required construction of the stator 8 that comprises the yoke 8Y and the mutually separated teeth blocks 80 which are separate from the yoke 8Y, usage of the non-magnetic plates 81 is needed in the arrangement of Muramatsu. Thus, the combination of Muramatsu with Nakano would not have been obvious to the ordinary artisan. This leaves the Itoh reference for combination with Nakano, which is addressed below. However, Muramatsu will also be discussed as well.

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Nakano teaches away from the present invention. Nakano teaches a precise rotor-stator-rotor configuration that enhances cooling of the structure. In this regard, the title of Nakano is “Motor with Cooling Structure.” The cooling structure of Nakano is fundamental to its teachings. Applicants respectfully submit that the importance of the cooling structure is such that the ordinary artisan would have been discouraged from modifying Nakano for fear of interfering with the precise cooling structure taught therein.

MPEP § 2144.05(III), entitled Rebuttal Of *Prima Facie* Case Of Obviousness, states that a “*prima facie* case of obviousness may also be rebutted by showing that the art, in any material respect, teaches away from the claimed invention.” (MPEP § 2144.05(III), second paragraph, emphasis added, citations omitted.) Applicants respectfully submit that to the extent that a *prima facie* case of obviousness has been established with respect to Nakano as a reference, that case is hereby rebutted in view of Nakano’s teaching away from modifying the structure taught therein to include a plate.

Moreover, the teachings of both Muramatsu and Itoh utilize yokes (elements 8Y and 31 respectively) to hold the plates in place. Nakano teaches a very narrow air gap between the stator and the outer rotor. Applicants respectfully submit that assuming *arguendo* that the ordinary artisan would have desired to incorporate the plates of either of the secondary references into Nakano (which he would not have wanted to do, as discussed herein), he would have also believed it necessary to also incorporate the yokes of these two references, and thus would have been discouraged from doing so, as Nakano does not teach yokes. Indeed, using such yokes would, no doubt, have been seen as an action that might further frustrate the cooling regime achieved by Nakano’s teachings. In this regard, the secondary references teach away from the claimed invention. (Note that Applicants have added new

claims 17-20 that affirmatively recite that no yoke is present between the stator and the outer rotor.)

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The Office Action asserts that motivation to modify Nakano in view of Muramatsu would have flown from the desire to eliminate leakage flux. Applicants respectfully submit that leakage flux that takes place between the leading ends of the teeth of the stator of Nakano, and thus travels through the air gap of the motor. This flux leakage would therefore be very small, and thus the skilled artisan would not have felt the need to add the plates of Muramatsu therein. As pointed out by Examiner Mullins during the August interview, Nakano does teach a number of “truncated cone” / trapezoidal openings in his stator, as depicted in Fig. 7. Applicants note that even assuming *arguendo* that this is the case, the plates of Muramatsu proffered to be utilized in Nakano have huge gaps between the teeth of those plates (see the male sprocket shape in Figs. 5 and 7 of Muramatsu). Were the plates of Muramatsu to be incorporated into Nakano, the alleged leakage flux thorough the gaps of the stator of Nakano would still be present, as the gaps of Muramatsu would align with a vast number of the gaps of Nakano. Thus, the ordinary artisan would not have sought out the teachings of Muramatsu for combination with Nakano to alleviate this alleged problem. Indeed, in this regard, Muramatsu teaches away from combination with Nakano for yet another reason.

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For motivation to combine Nakano with Itoh, the Office Action proffers improved “manufacturability and structural stability of the stator” of Nakano. Applicants likewise traverse this assertion. First, any manufacturing process that requires both the addition of different parts (adding the plate of Itoh between stator laminates as opposed to merely stacking the laminates without placing anything in between) and the action of pausing in between one manufacturing action (stacking the laminates) to perform another manufacturing action (inserting the plates) would decrease the manufacturability of the fabricated device.

Second, the plates of depicted in Fig. 10, where the bridges 55 are not cut, are decidedly flimsy structures, at least in appearance. Moreover, inserting the structure depicted

in Itoh in the stator of Nakano would weaken, not strengthen Nakano. That is, inserting any such flimsy components as those taught by Itoh between the laminates forming the stator of Nakano would have been viewed as reducing the structural integrity of the motor of Nakano. Again, in this regard, Itoh teaches away from the present invention.

The Office Action does not provide any rationale as to why the teachings of Itoh would have been seen as improving manufacturability of Nakano. Other than the general assertion about the advantages of combining Itoh with Nakano quoted above, nothing more is said about this assertion. If the first requirement of MPEP § 2143 could be satisfied by merely asserting advantages in manufacturability, without any rationale, the first requirement would be completely eviscerated. In fact, it is quite likely that the ordinary artisan would have viewed the teachings of Itoh as complicating the manufacturing process of Nakano, as Itoh teaches braking up the components that make the teeth from the blank ring 50 and then bracing those components together with elements 38 and 31, which would have appeared to the ordinary artisan to have been much more complicated than the teachings of Nakano. Thus, Itoh would have taught away from the invention of the claims.

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The cited references teach away from the present invention for additional reasons. Muramatsu specifically teaches a stator without bracket members (*see, e.g.*, Figs. 5 and 7, *etc.*, of Muramatsu). Itoh also depicts a stator without bracket members (*see, e.g.*, Fig. 9, *etc.*, of Itoh). Instead, the stator of Muramatsu is held together with the yoke 8Y, and the stator of Itoh is also held together utilizing a yoke. Thus, these two references teach away from the present invention for yet additional reasons.

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Applicants again point out that the teachings of Muramatsu are entirely directed towards a single rotor single stator type motor. This is substantially different from the two rotor single stator type electric motor of Nakano. The ordinary artisan, who is by definition an non-innovator, would not have sought out a single rotor/stator type motor for teachings to be incorporated into such a different type motor as Nakano, *even if such motors are within the same field of endeavor*. Indeed, history is replete with inventions that constitute the combination of components for the exactly the same field of endeavor (*see, e.g.*, the electric

motor arts.) Applicants submit that using components from a single rotor/stator type motor is the work of an innovator, and thus the combination is not obvious.

Nakano + Muramatsu + Kurosawa: The combination of these three references would not have been obvious for at least the reason that there is no motivation to combine Nakano and Muramatsu, as detailed above. Thus, assuming *arguendo* that it would have been obvious to combine Kurosawa with Nakano, a *prima facie* case of obviousness still is not made.

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In sum, the prior art does not provide sufficient motivation to modify Nakano with the teachings of Muramatsu, let alone with the further teachings of Kurosawa, and does not provide sufficient motivation to modify Nakano with the teachings of Itoh, and thus the first requirement of MPEP § 2143 cannot be met with these two references.

Lack of a Reasonable Expectation of Success

MPEP § 2143.02 permits references to be modified or combined to reject a claim as obvious only if there is a reasonable expectation of success. Applicants respectfully submit that the above-points regarding lack of motivation to modify/combine also demonstrate that the ordinary artisan would not have reasonably believed, even if incorrectly,¹ that the modifications to Nakano would bring successful results. Thus, one of ordinary skill in the art would not have had a reasonable expectation of success in producing a successful motor as claimed. Because of this, the second criteria of MPEP § 2143 has not been met in the Office Action, and a *prima facie* case of obviousness has therefore not been established.

¹ Note that if the requirement was that the ordinary artisan would have *correctly* believed that the combination/modification would *not* have succeeded, any examined invention to which the second requirement of MPEP 2143 was applied would necessarily be unworkable, rendering the second requirement meaningless.

New Claims

As seen above, Applicants have added new claims 17-24. Claims 17-20 recite that the stator does not include a yoke between the stator core and the outer rotor. As detailed above, both of the secondary references specifically teach a yoke. Thus, the ordinary artisan would have been even more discouraged from modifying Nakano as proffered in the Office Action.

Claims 21-24 recite a vehicle drive system, comprising a planetary gear unit including a first sun gear and a second sun gear and the stator as claimed in the various independent claims. These claims further recite that the inner rotor is rotationally linked to the first sun gear, and the outer rotor is rotationally linked to the second sun gear. None of the cited references teach or suggest such features.

Support for the new claims may be found, amongst other places, in the figures as originally filed, and in the specification on the bottom of page 5 and the top of page 6 as originally filed.

Conclusion

Applicants believe that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Examiner Mullins is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

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